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The Files

30 October 1956

[Redacted]

(Trip Report - Contract RD-107, Task Order 3)

1. On 25 October 1956, a meeting was held at the [Redacted] to discuss progress on the subject task order. Present at the meeting were:

[Redacted]

[Redacted] CC-E/RAD  
[Redacted] CC-E/RAD-KF

2. [Redacted] stated that preliminary testing has indicated that the gain of the VHF ferrite antennas will not be nearly as high as had been hoped. This project was initiated on the basis of tests [Redacted] on a ferrite television antenna which showed gains of approximately 1 db below a dipole over a very wide frequency range. Initial tests on the ferrite developed under this task order have indicated that the gain ranges from 15 db below a dipole at 200 megacycles to 40 db below a dipole at 60 megacycles. It is not certain that these preliminary checks were accurate in all respects, i.e., there were probably certain impedance mismatches, the antenna transmission line may have caused reflections and antenna orientation was not ideal. Upon receipt of these discouraging test results, [Redacted] reviewed the [Redacted] test data. Review of the data indicated that an improperly shielded transmission line in the [Redacted] test may have contributed to erroneously good results.

3. [Redacted] will continue testing the ferrite antenna. The tests will be performed on the ferrite alone without crystal and matched into the transmission line with a wide band balun. The test program will determine the gain, antenna pattern, impedance, and frequency response from 50 to 250 megacycles. The tests will be performed in an open field test range since the [Redacted] screen room will not be completed in time. [Redacted] feels that running response curves outside the 50 to 250 megacycles band is beyond the scope of the original contract and they have declined to bid on running the tests as an extension to the contract. They feel that the work is not the type that can be efficiently done in a research laboratory. The testing is planned for completion by 1 December 1956.

4. Two types of broad band antennas were considered, one containing two ferrite rods, a sample of which was delivered on 11 October 1956, and

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one containing a single ferrite rod. Sensitivity measurements indicated that the single ferrite antenna was the more sensitive and it will therefore be the design delivered.

5. Five broad band antennas of the single ferrite type were delivered to the writer on 25 October 1956. It is expected that all other deliverable antennas will have been shipped by 12 November 1956.

6. The project engineer has been able to spend some time on phase B of this task order. [ ] stated that there had been no increase in cost or scope of this task order as of that date. [ ] was told that it was not necessary to supply instruction books or individual calibration curves on the tunable antennas. [ ] was asked not to put the impedance matching transformer in the wide band unit.

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7. The attached response characteristic on one of the wide band ferrites show that in a horizontally polarized field there is very little difference between vertical and horizontal position of the ferrite antenna. In this curve the ordinate is db below some arbitrary reference. It shows that "suck-outs" in the response curve are only one or two db deep. This is a preliminary test and may be superseded by the results of the later test program.

8. The suggestion of using the ferrite as a non-linear impedance so that CW or FSK signals may be detected on a crystal video receiver was discussed with [ ]. He promised to look into the matter.

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OC-E/R&D-EP/TGW:wlm (29 Oct. '56)

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